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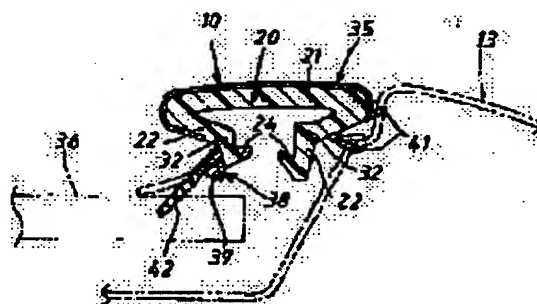
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(54) MOLDING FOR AUTOMOBILE AND ITS PRODUCTION METHOD

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a molding for automobile, of which whole core material, a design part and a lip part are integral extrusion moldings with olefin resin, excels in recycling, eco-friendliness and is lighter and more cost-effective compared with a molding using a metal core material.

SOLUTION: The core material, equipped with a surface part and a leg part, of which locking part is formed to lock on a side of the body, is molded with rigid polypropylene in an extrusive manner. The design part is integrally molded in an extrusive manner on the surface of the core material with colored highly crystalline polypropylene. The lip part is integrally molded in an extrusive manner on the side of the leg part with olefin elastomer. Thus, the overall molding is integrally molded with the olefin resin.



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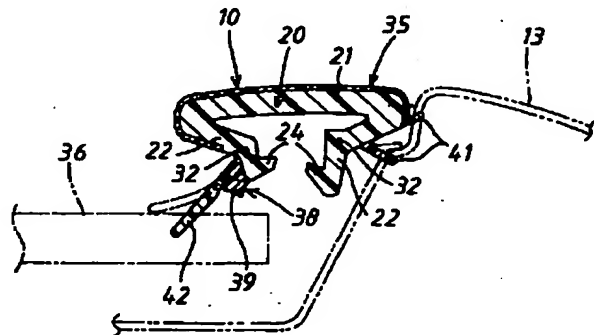
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(54) 【発明の名称】 自動車用モール及びその製造方法

(57) 【要約】

【課題】 芯材、意匠部及びリップ部の全てをオレフィン系樹脂で一体押し成形し、リサイクル性、環境性に優れ、金属芯材を用いたモールに比して軽量、低コストな自動車用モールを提供することである。

【解決手段】 表面部とボデー側に係止される係止部が形成された脚部とを有する芯材を硬質ポリプロピレンで押し成形し、芯材の表面部上に意匠部を着色高結晶ポリプロピレンで押し一体成形し、脚部の側面上にリップ部をオレフィン系エラストマーで押し一体成形することにより、モール全体をオレフィン系樹脂の一体成形体とした。



【特許請求の範囲】

【請求項1】 表面部とボデー側に係止される係止部が形成された脚部とが押出し成形された硬質ポリプロピレン製の芯材と、前記表面部の外表面上に押出し一体成形された着色高結晶ポリプロピレン製の意匠部と、前記脚部の側面上に押出し一体成形されたオレフィン系エラストマー製のリップ部とを備えたことを特徴とする自動車用モール。

【請求項2】 請求項1に記載の自動車用モールにおいて、前記芯材がタルク又は炭酸カルシウム又はタルクと炭酸カルシウムとの混合物を10～50重量パーセント含有する硬質ポリプロピレンで形成され、前記意匠部が耐候性成分を含有する着色高結晶ポリプロピレンで形成され、前記リップ部がJIS-A硬度60～80°のオレフィン系エラストマーで形成されたことを特徴とする自動車用モール。

【請求項3】 断面が略C字形状に押出し成形され両側脚部の先端部にボデー側に係止される係止部が形成された硬質ポリプロピレン製の芯材と、該芯材の両側脚部を連結する表面部の外表面上に押出し一体成形された着色高結晶ポリプロピレン製の意匠部と、前記ボデー側と離間する箇所がある一方の脚部の先端部に押出し一体成形され該離間する箇所までボデー側に向かって延出するオレフィン系エラストマー又はポリプロピレン製の徐変部と、他方の脚部の外側面上及び前記徐変部の外側面上に夫々押出し一体成形されたオレフィン系エラストマー製のリップ部とを備えたことを特徴とする自動車用モール。

【請求項4】 請求項3に記載の自動車用モールにおいて、前記芯材がタルク又は炭酸カルシウム又はタルクと炭酸カルシウムとの混合物を10～50重量パーセント含有する硬質ポリプロピレンで形成され、前記意匠部が耐候性成分を含有する着色高結晶ポリプロピレンで形成され、前記徐変部がSHORE-D硬度40～60°、曲げ弾性率650～850MPaのオレフィン系エラストマー又はポリプロピレンで形成され、前記リップ部がJIS-A硬度60～80°のオレフィン系エラストマーで形成されたことを特徴とする自動車用モール。

【請求項5】 請求項1乃至請求項4のいずれかに記載の自動車用モールにおいて、前記モールの両端部にJIS-A硬度90～100°のオレフィン系エラストマー又はポリプロピレン製の端末ピース部を射出成形したことを特徴とする自動車用モール。

【請求項6】 表面部とボデー側に係止される係止部が形成された脚部とを有する硬質ポリプロピレン製の芯材と、前記表面部の外表面上に成形される着色高結晶ポリプロピレン製の意匠部と、脚部の側面上に成形されるオレフィン系エラストマー製のリップ部とを一つの押出し成形ラインで一体に押出し成形して棒状成形部材を形成し、該棒状成形部材を所定長さに裁断して加熱後にベン

ダーによりボデー形状に沿った形状の屈曲成形体に曲げ加工し、該屈曲成形体をアニールして前記芯材の硬質ポリプロピレンの結晶化度を40～55パーセントに制御することを特徴とする自動車用モールの製造方法。

【請求項7】 断面が略C字形状をなし両側脚部の先端部にボデー側に係止される係止部が形成された硬質ポリプロピレン製の芯材と、該芯材の両側脚部を連結する表面部の外表面上に成形される着色高結晶ポリプロピレン製の意匠部と、前記ボデー側と離間する箇所がある一方の脚部の先端部に成形され該離間する箇所までボデー側に向かって延出するオレフィン系エラストマー又はポリプロピレン製の徐変部と、他方の脚部の外側面上及び前記徐変部の外側面上に夫々成形されるオレフィン系エラストマー製のリップ部とを一つの押出し成形ラインで一体に押出し成形して棒状成形部材を形成し、該棒状成形部材を所定長さに裁断して加熱後にベンダーによりボデー形状に沿った形状の屈曲成形体に曲げ加工し、該屈曲成形体をアニールして前記芯材の硬質ポリプロピレンの結晶化度を40～55パーセントに制御することを特徴とする自動車用モールの製造方法。

【請求項8】 請求項6又は請求項7に記載の自動車用モールの製造方法において、前記屈曲成形体の両端部にオレフィン系エラストマー又はポリプロピレンの端末ピース部を射出成形することを特徴とする自動車用モールの製造方法。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】 本発明は、自動車用モール及びその製造方法に関する。

【0002】

【従来の技術】 断面略コ字形状で両側脚部に係止部が形成された金属芯材を覆うように変性オレフィン系又は変性スチレン系のカラー樹脂を押出し成形し、該カラー樹脂に軟質合成樹脂製のリップを設けた自動車用カラーモールが特開昭2000-313049号公報に記載されている。

【0003】 また、アクリロニトリル・アクリルゴム・スチレン樹脂、アクリロニトリル・EPDM・スチレン樹脂又はアクリロニトリル・スチレン・ブタジェン樹脂等からなるモール表面部の裏面に、断面略シ字形状で係止部が形成されたアクリロニトリル・アクリルゴム・スチレン樹脂又はアクリロニトリル・EPDM・スチレン樹脂からなるモール主体を一体成形し、軟質PVC、スチレン・エチレン・ブチレン・スチレン樹脂などの柔軟な樹脂からなるリップをモール主体に突設した自動車用ルーフモールが特開平9-2170号公報に記載されている。

【0004】

【発明が解決しようとする課題】 金属製の芯材上に熱可塑性樹脂を被覆して形成した自動車用モールにあっては、軽量化、リサイクル性、コスト面で問題があり、ま

たボデー形状に沿った形状とするためにロール成形又はプレス成形を行なわなければならない、製造コストも高くなっていた。

【0005】また、モール表面部及びモール主体部にアクリロニトリル・アクリルゴム・スチレン樹脂、アクリロニトリル・EPDM・スチレン樹脂で成形し、リップを軟質ポリ塩化ビニル樹脂、スチレン・エチレン・ブチレン・スチレン樹脂などで成形したモールにおいては、環境性、リサイクル性に問題があった。

【0006】さらに、モール外表面を非晶性樹脂で形成した従来のモールは、付着したガソリンや酸性又はアルカリ性の洗車液により変質し、破損しやすくなる不具合があった。

【0007】本発明は、係る従来の不具合を解消するためになされたもので、その目的は、芯材、意匠部、徐変部及びリップ部の全てをオレフィン系樹脂で一体押し出し成形したことである。

【0008】

【課題を解決するための手段】上記の課題を解決するため、請求項1に記載の発明の構成上の特徴は、表面部とボデー側に係止される係止部が形成された脚部とが押し出し成形された硬質ポリプロピレン製の芯材と、前記表面部の外表面上に押し出し一体成形された着色高結晶ポリプロピレン製の意匠部と、前記脚部の側面上に押し出し一体成形されたオレフィン系エラストマー製のリップ部とを備えたことである。

【0009】請求項2に係る発明の構成上の特徴は、請求項1に記載の自動車用モールにおいて、前記芯材がタルク又は炭酸カルシウム又はタルクと炭酸カルシウムとの混合物を10～50重量パーセント含有する硬質ポリプロピレンで形成され、前記意匠部が耐候性成分を含有する着色高結晶ポリプロピレンで形成され、前記リップ部がJIS-A硬度60～80°のオレフィン系エラストマーで形成されたことである。

【0010】請求項3に係る発明の構成上の特徴は、断面が略C字形状に押し出し成形され両側脚部の先端部にボデー側に係止される係止部が形成された硬質ポリプロピレン製の芯材と、該芯材の両側脚部を連結する表面部の外表面上に押し出し一体成形された着色高結晶ポリプロピレン製の意匠部と、前記ボデー側と離間する箇所がある一方の脚部の先端部に押し出し一体成形され該離間する箇所をボデー側に向かって延出するオレフィン系エラストマー又はポリプロピレン製の徐変部と、他方の脚部の外側面上及び前記徐変部の外側面上に夫々押し出し一体成形されたオレフィン系エラストマー製のリップ部とを備えたことである。

【0011】請求項4に係る発明の構成上の特徴は、請求項3に記載の自動車用モールにおいて、前記芯材がタルク又は炭酸カルシウム又はタルクと炭酸カルシウムとの混合物を10～50重量パーセント含有する硬質ポリ

プロピレンで形成され、前記意匠部が耐候性成分を含有する着色高結晶ポリプロピレンで形成され、前記徐変部がSHORE-D硬度40～60°、曲げ弾性率650～850MPaのオレフィン系エラストマー又はポリプロピレンで形成され、前記リップ部がJIS-A硬度60～80°のオレフィン系エラストマーで形成されたことである。

【0012】請求項5に係る発明の構成上の特徴は、請求項1乃至請求項4のいずれかに記載の自動車用モールにおいて、前記モールの両端部にJIS-A硬度90～100°のオレフィン系エラストマー又はポリプロピレン製の端末ピース部を射出成形したことである。

【0013】請求項6に係る発明の構成上の特徴は、表面部とボデー側に係止される係止部が形成された脚部とを有する硬質ポリプロピレン製の芯材と、前記表面部の外表面上に成形される着色高結晶ポリプロピレン製の意匠部と、脚部の側面上に成形されるオレフィン系エラストマー製のリップ部とを一つの押し出し成形ラインで一体に押し出し成形して棒状成形部材を形成し、該棒状成形部材を所定長さに裁断して加熱後にベンダーによりボデー形状に沿った形状の屈曲成形体に曲げ加工し、該屈曲成形体をアニールして前記芯材の硬質ポリプロピレンの結晶化度を40～55パーセントに制御することである。

【0014】請求項7に係る発明の構成上の特徴は、断面が略C字形状をなし両側脚部の先端部にボデー側に係止される係止部が形成された硬質ポリプロピレン製の芯材と、該芯材の両側脚部を連結する表面部の外表面上に成形される着色高結晶ポリプロピレン製の意匠部と、前記ボデー側と離間する箇所がある一方の脚部の先端部に成形され該離間する箇所をボデー側に向かって延出するオレフィン系エラストマー又はポリプロピレン製の徐変部と、他方の脚部の外側面上及び前記徐変部の外側面上に夫々成形されるオレフィン系エラストマー製のリップ部とを一つの押し出し成形ラインで一体に押し出し成形して棒状成形部材を形成し、該棒状成形部材を所定長さに裁断して加熱後にベンダーによりボデー形状に沿った形状の屈曲成形体に曲げ加工し、該屈曲成形体をアニールして前記芯材の硬質ポリプロピレンの結晶化度を40～55パーセントに制御することである。

【0015】請求項8に係る発明の構成上の特徴は、請求項6又は請求項7に記載の自動車用モールの製造方法において、前記屈曲成形体の両端部にオレフィン系エラストマー又はポリプロピレンの端末ピース部を射出成形することである。

【0016】

【発明の作用・効果】上記のように構成した請求項1に係る発明においては、表面部とボデー側に係止される係止部が形成された脚部とを有する芯材を硬質ポリプロピレンで押し出し成形し、芯材の表面部に着色高結晶ポリプロピレン製の意匠部を押し出し一体成形し、脚部の側面上にオレフィン系エラストマー製のリップ部を押し出し

体成形して、モール全体をオレフィン系樹脂の一体成形体としたので、リサイクル性、環境性に優れ、金属芯材を用いたモールに比して軽量、低コストとなり、外側意匠部を着色高結晶ポリプロピレンで成形したことにより傷が付き難く洗車液等により劣化することがない。

【0017】上記のように構成した請求項2に係る発明においては、芯材をタルク又は炭酸カルシウム又はタルクと炭酸カルシウムとの混合物を10～50重量パーセント含有する硬質ポリプロピレンで形成し、前記意匠部を耐候性成分を含有する着色高結晶ポリプロピレンで形成し、前記リップ部をJIS-A硬度60～80°のオレフィン系エラストマーで形成したので、請求項1に記載の発明の効果に加え、十分な剛性を備えた芯材、耐候性を有する意匠部、必要な柔軟性を備えたリップ部とすることができる。

【0018】上記のように構成した請求項3に係る発明においては、断面が略C字形状をなし両側脚部の先端部にボデー側に係止される係止部が形成された硬質ポリプロピレン製の芯材を押出し成形し、芯材の表面部に着色高結晶ポリプロピレン製の意匠部を押出し一体成形し、ボデー側と離間する箇所がある一方の脚部の先端部上にボデー側に向かって延出するオレフィン系エラストマー又はポリプロピレン製の徐変部を押出し一体成形し、他方脚部の外側面上及び徐変部の外側面上にオレフィン系エラストマー製のリップ部を夫々押出し一体成形して、モール全体をオレフィン系樹脂の一体成形体としたので、リサイクル性、環境性に優れ、金属芯材を用いたモールに比して軽量、低コストとなり、外側意匠部を着色高結晶ポリプロピレンで成形したことにより傷が付き難く洗車液等により劣化することがなく、且つオレフィン系エラストマー又はポリプロピレンで形成した徐変部によりモール両側のボデー形状が異なる部位にも滑らかにフィットすることができる。

【0019】上記のように構成した請求項4に係る発明においては、芯材をタルク又は炭酸カルシウム又はタルクと炭酸カルシウムとの混合物を10～50重量パーセント含有する硬質ポリプロピレンで形成し、前記意匠部を耐候性成分を含有する着色高結晶ポリプロピレンで形成し、前記徐変部をSHORE-D硬度40～60°、曲げ弾性率650～850MPaのオレフィン系エラストマー又はポリプロピレンで形成し、前記リップ部をA硬度60～80°のオレフィン系エラストマーで形成したので、請求項3に記載の発明の効果に加え、十分な剛性を備えた芯材、耐候性を有する意匠部、必要な柔軟性を備えた徐変部及びリップ部とすることができる。

【0020】上記のように構成した請求項5に係る発明においては、請求項1乃至請求項4に記載の自動車用モールにおいて、モールの両端部にJIS-A硬度90～100°のオレフィン系エラストマー又はポリプロピレン製の端末ピース部を射出成形するようにしたので、請求項

1乃至請求項4のいずれかに記載の発明の効果に加え、端末ピース部も含めた全てをオレフィン系樹脂で形成したリサイクル性、環境性に優れ、軽量、低コストな自動車用モールを得ることができる。

【0021】上記のように構成した請求項6に係る発明においては、表面部とボデー側に係止される係止部が形成された脚部とを有する硬質ポリプロピレン製の芯材と、該芯材の表面部の外表面上に成形される着色高結晶ポリプロピレン製の意匠部と、脚部の側面上に成形されるオレフィン系エラストマー製のリップ部とを一つの押出し成形ラインで一体に押出し成形して棒状成形部材を形成し、該棒状成形部材を所定長さに裁断して加熱した後にベンダーによりボデー形状に沿った形状の屈曲成形体に曲げ加工し、該屈曲成形体をアニールして芯材の硬質ポリプロピレンの結晶化度を40～55パーセントに制御するようにしたので、芯材が自動車の使用環境高温下においても変形することがなく、自動車のボデー形状に沿った滑らかな形状を維持することができ、且つ全てオレフィン樹脂で形成された自動車用モールを良好な作業環境で、低コストに製造することができる。

【0022】上記のように構成した請求項7に係る発明においては、断面が略C字形状をなし両側脚部の先端部にボデー側に係止される係止部が形成された硬質ポリプロピレン製の芯材と、該芯材の表面部の外表面上に成形される着色高結晶ポリプロピレン製の意匠部と、ボデー側と離間する箇所がある一方の脚部の先端部上に成形されるオレフィン系エラストマー又はポリプロピレン製の徐変部と、他方の脚部の外側面上及び徐変部の外側面上に夫々成形されるオレフィン系エラストマー製のリップ部とを一つの押出し成形ラインで一体に押出して棒状成形部材を形成し、該棒状成形部材を所定長さに裁断して加熱した後にベンダーによりボデー形状に沿った形状の屈曲成形体に曲げ加工し、該屈曲成形体をアニールして芯材の硬質ポリプロピレンの結晶化度を40～55パーセントに制御するようにしたので、モール両側のボデー形状が異なる部位に滑らかにフィットすることができる。徐変部を芯材に効率的に押出し一体成形することができ、自動車の使用環境高温下において芯材が変形してボデー外形から離反することがなくなり、且つ全てオレフィン樹脂で形成された自動車用モールを良好な作業環境で、低コストに製造することができる。

【0023】上記のように構成した請求項8に係る発明においては、請求項6又は請求項7に記載の自動車用モールの製造方法において、屈曲成形体の両端部にオレフィン系エラストマー又はポリプロピレンの端末ピース部を射出成形するようにしたので、請求項6又は請求項7に記載の発明の効果に加え、端末ピース部も含めた全てをオレフィン系樹脂で形成した自動車用モールを低コストで製造することができる。

【0024】

【実施の形態】本発明の実施形態を図面に基づいて説明する。本発明に係る自動車用モール10は、図1に示すように、自動車のボデー11の例えばルーフパネル12とサイドパネル13との接合部14に装着されるもので、ルーフ部15、フロントウインド部16及びリヤウインド部17から構成されている。

【0025】自動車用モール10は、図2乃至図7に示すように、断面略C字形状に押し出し成形された硬質ポリプロピレン製の芯材20をベースに形成されている。芯材20を形成する硬質ポリプロピレンとしては、タルク又は炭酸カルシウム又はタルクと炭酸カルシウムとの混合物などを10～50重量パーセント含有したもの、例えば、ポリプロピレンにタルクを略40重量パーセント添加したものをを用いる。芯材20の表面部21の両側から突設された脚部22の先端部にはボデー11側に適宜間隔を置いて固定されたポリプロピレン製の固定具23、31に係止される係止部24が夫々内側に形成されている。モール10のルーフ部15をボデー11のルーフ部分に固定する固定具23は、図3に示すように、ルーフパネル12とサイドパネル13との接合部14に固定された基部25及び基部25から上方に突設されて先端に各係止部24と係合する鉤部26が夫々形成された一対の突出部27が設けられている。モール10のフロントウインド部16及びリヤウインド部17をボデー11のウインドウ側方部分に固定する固定具31は、図7に示すように、サイドパネル13に固定された基部28及び基部28から上方に突設されて先端に窓ガラス側の係止部24と係合する鉤部29が形成された突出部30が設けられている。32はモール10が熱などで収縮するのを防止するためのワイヤで、芯材20を押し出し成形する際に各脚部22の中央部分に長手方向に一体的に埋め込まれる。

【0026】35は着色高結晶ポリプロピレン製の意匠部で、芯材20の両側脚部22を連結する表面部21の外表面上に押し出し一体成形されている。高結晶ポリプロピレンは硬いので、耐傷付き性が向上する。高結晶ポリプロピレンには顔料、アルミ箔等の着色剤だけでなく、耐熱安定剤、紫外線吸収剤、光安定剤等(UVA, HALSなど)の耐候性成分を添加するとよい。

【0027】フロントウインド部16及びリヤウインド部17においては、図2及び図7に示すように、芯材20の両側脚部22の中、窓ガラス36、37側の脚部22とボデー側である窓ガラス36、37とが離間している。38はボデー側の脚部22の先端部上に押し出し一体成形されたオレフィン系エラストマー又はポリプロピレン製の徐変部で、一方の脚部22が窓ガラス36、37と離間する箇所まで延出部39、40がボデー側に向かって延出されている。徐変部38は、SHORE-D硬度40～60°、曲げ弾性率650～850MPaのオレフィン系エラストマー又はポリプロピレンで形成するとよい。

【0028】芯材20のサイドパネル13側の他方脚部22の外側面上には、オレフィン系エラストマー製のリップ部41が2条押し出し一体成形され、サイドパネル13に当接している。徐変部38の外側面上にもオレフィン系エラストマー製のリップ部42が押し出し一体成形されている。フロントウインド部16及びリヤウインド部17ではリップ部42は徐変部38の延出部39、40上に成形されて窓ガラス36、37に接近して当接している。リップ部41、42は、芯材20及び徐変部38との融着性に優れたJIS-A硬度60～80°のオレフィン系エラストマーで形成するとよい。

【0029】図1において、43はモール20の両端部に射出成形された端末ピースで、JIS-A硬度90～100°のオレフィン系エラストマー又はポリプロピレンで形成されている。

【0030】次に、自動車用モール10の製造方法について説明する。図8において50は一つの押し出し成形ラインで、芯材20用の硬質ポリプロピレンの押し出し機51、意匠部35用の着色高結晶ポリプロピレンの押し出し機52、徐変部38用のオレフィン系エラストマー又はポリプロピレンの押し出し機53、リップ部41、42用のオレフィン系エラストマーの押し出し機54を有する。押し出し機51～54から押し出された樹脂は、押し出し金型装置55の芯材20、意匠部35、徐変部38、リップ部41、42の断面形状を有する各押し出し金型に供給され、断面が略C字形状の硬質ポリプロピレン製の芯材20が押し出し成形され、芯材20の表面部21の外表面上に着色高結晶ポリプロピレン製の意匠部35が押し出し一体成形され、一方の脚部22の先端部上にオレフィン系エラストマー又はポリプロピレン製の徐変部38が押し出し一体成形され、他方の脚部22の外側面上及び徐変部38の外側面上にはオレフィン系エラストマー製のリップ部41、42が夫々押し出し一体成形されて棒状成形部材57が形成される。

【0031】この場合、図7に示すように、芯材20は、リヤウインド部17においてサイドパネル側の脚部22が短くなっているため、芯材20用の押し出し金型は、棒状成形部材57の押し出し量に関連してリヤウインド部17においてサイドパネル側の脚部22が短くなるようにノズル開口形状を変更されるようになっている。また、徐変部38用の押し出し金型もノズル開口形状が可変式になっており、一方の脚部22がボデー側と離間するフロントウインド部16及びリヤウインド部17で棒状成形部材57の押し出し量に関連して拡張し、ボデー側に向かってこの離間距離に応じて延出する延出部39、40を徐変部38に成形するようになっている。リップ部42を徐変部38の先端部外側面に押し出し一体成形するために、リップ部42用の押し出し金型は、棒状成形部材57の押し出し量に関連してフロントウインド部16及びリヤウインド部17において延出部39、40の先端

部に対向するように移動される。56はワイヤ供給装置で、両側脚部22の各中央部分に長手方向にワイヤ32を埋め込んだ状態で芯材20を押し出し成形するために、ワイヤ32を芯材20用の押し出し金型に供給する。

【0032】意匠部35用の押出し金型の上方には、リール60に巻かれた連続状のフィルム61が設けられている。フィルム61は、上記オレフィン系樹脂の熔融温度で熔融されない耐熱性のポリエチレンテレフタレートフィルムからなる。意匠部35用の押出し金型には上方からノズル上面に開口するスリットが形成され、リール60からスリットを通してノズルに導出されたフィルム61は押出し成形された意匠部35の上面に圧着される。

【0033】押出し成形ライン50により押出し成形されフィルム61が圧着されたモール10の棒状成形部材57は、サイジング装置58により所定形状に安定化された後、冷却水を収容した冷却水槽59を通過して所定形状に冷却固化される。棒状成形部材57が冷却水槽59を通過した後にフィルム61はリール62に巻き取られて意匠部35から剥離される。意匠部35からフィルム61が剥離された棒状成形部材57にはリール63に巻かれた保護テープ64がローラ65により意匠部35に押付けて貼り付けられる。65は引抜き機で、押出し成形ライン50により押出し成形された棒状成形部材57を引き抜くようになっている。保護テープ64が貼り付けられた棒状成形部材57は、引抜き機65により引き抜かれた後、所定箇所所で所定長さに裁断機66により裁断され、モール10一個の成形素材67が形成される。

【0034】次に、成形素材67は、ベンダーによる曲げ加工が可能となる程度に軟化する温度まで加熱され（行程70）、3次元ベンダーによりボデー形状に合わせて、図2乃至図7に示すように、3次元に曲げ加工される（行程71）。3次元に曲げ加工された屈曲成形体68は、自動車の使用環境高温下において形状保持するためにアニールされる（工程72）。アニールは、3次元に曲げ加工された成形素材67を軟化温度より低い結晶化温度130～155℃で0.2～1時間加熱して、芯材20のタルク等を含有するポリプロピレンの結

晶化度を40～55パーセントに制御する。これにより芯材が変形してモール10がボデー外形から離反することがなくなる。アニールされた屈曲成形体68の両端部にオレフィン系エラストマー又はポリプロピレンの末端ピース部69が射出成形されて(工程73)、自動車用モール10が完成する。

【0035】上記実施形態においては、ルーフ部15の両側にフロントウィンド部16及びリヤウィンド部17を形成しているが、フロントウィンド部16及びリヤウィンド部17を取り除き、徐変部のないルーフ部のみで自動車用モールを形成してもよい。

【図面の簡単な説明】

【図１】 本発明に係る自動車用モールを装着した自動車の平面図である。

【図2】 図1の2-2断面図である。

【図3】 図1の3-3断面図である。

【図4】 図1の4-4断面図である。

【図5】 図1の5-5断面図である。

【図6】 図1の6-6断面図である。

【図7】 図1の7-7断面図である。

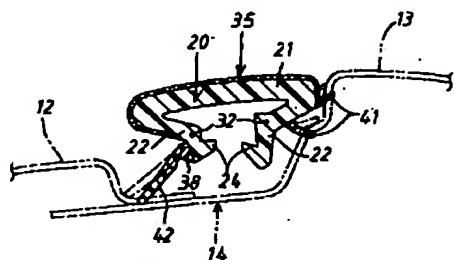
【図8】 自動車用モールの棒状成形素材を押し出し成形する工程を示す図である。

【図9】 棒状成形素材を自動車用モールに完成させる製造工程を示す図である。

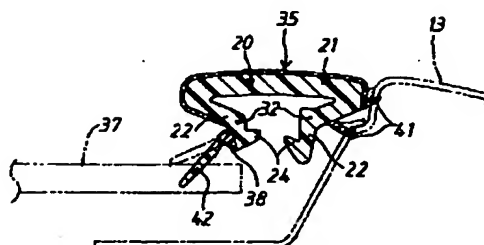
【符号の説明】

10・・・自動車用モール、11・・・ボデー、12・・・ルーフパネル、13・・・サイドパネル、14・・・接合部、15・・・ルーフ部、16・・・フロントウインド部、17・・・リヤウインド部、20・・・芯材、21・・・表面部、22・・・脚部、24・・・係止部、23、31・・・固定具、35・・・意匠部、36、37・・・窓ガラス、38・・・徐変部、39、40・・・延出部、41、42・・・リップ部、43・・・端末ピース部、50・・・押し出し成形ライン、51～54・・・押し出し機、55・・・押し出し金型装置、57・・・棒状成形部材、66・・・裁断機、67・・・棒状成形素材、70・・・加熱工程、71・・・曲げ工程、72・・・アニール工程、73・・・射出成形工程。

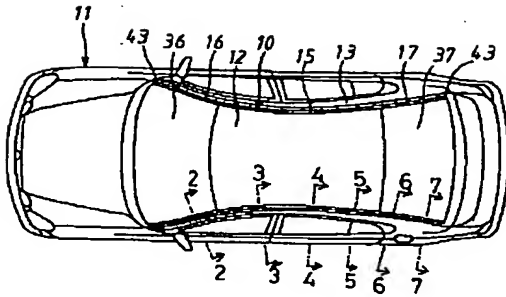
【図5】



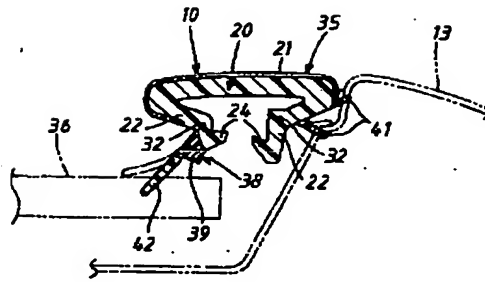
【図6】



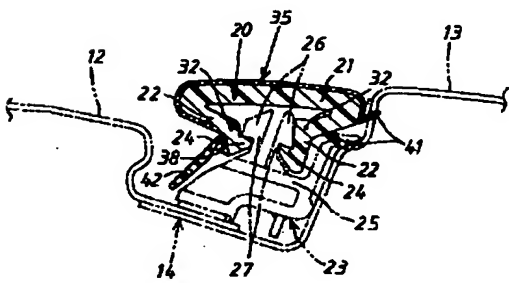
【図1】



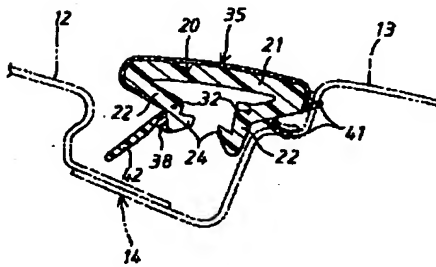
【図2】



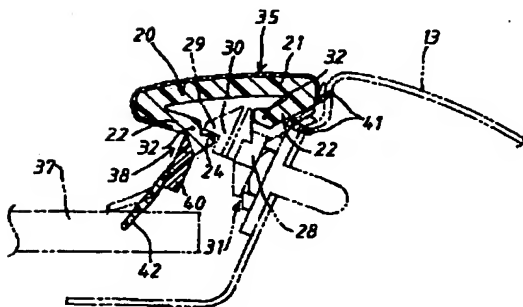
【図3】



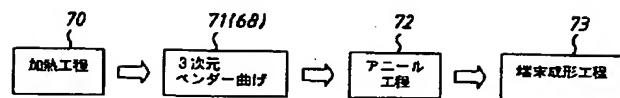
【図4】



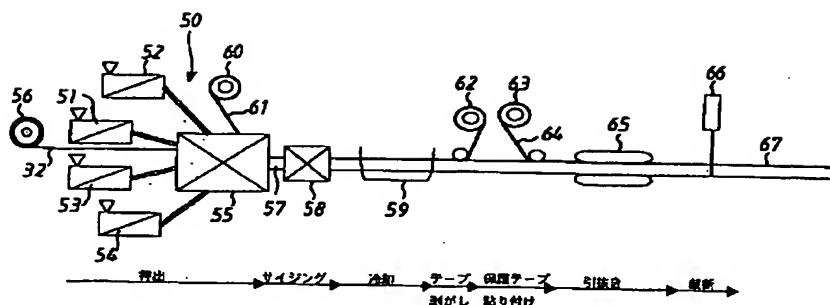
【図7】



【図9】



【図8】



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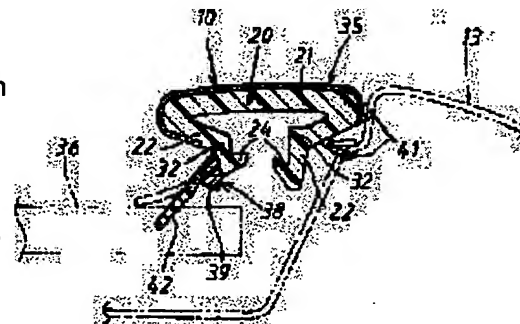
(72)Inventor : YAMAMOTO MINORU
NOMURA YOSHIHIRO

(54) MOLDING FOR AUTOMOBILE AND ITS PRODUCTION METHOD

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a molding for automobile, of which whole core material, a design part and a lip part are integral extrusion moldings with olefin resin, excels in recycling, eco-friendliness and is lighter and more cost-effective compared with a molding using a metal core material.

SOLUTION: The core material, equipped with a surface part and a leg part, of which locking part is formed to lock on a side of the body, is molded with rigid polypropylene in an extrusive manner. The design part is integrally molded in an extrusive manner on the surface of the core material with colored highly crystalline polypropylene. The lip part is integrally molded in an extrusive manner on the side of the leg part with olefin elastomer. Thus, the overall molding is integrally molded with the olefin resin.



LEGAL STATUS

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CLAIMS

[Claim(s)]

[Claim 1] The mall for automobiles characterized by to have the design section made from coloring high crystal polypropylene in which the surface section and the leg in which the stop section stopped at a body side was formed extruded on the core material made from hard polypropylene by which extrusion molding was carried out, and the outside surface of said surface section, and were really fabricated, and the lip section made from an olefin system elastomer which extruded on the side face of said leg and was really fabricated.

[Claim 2] the mall for automobiles characterize by having been formed in the mall for automobiles according to claim 1 with the hard polypropylene with which said core material carry out 10-50 percentage by weight content of the mixture of talc, a calcium carbonate, or a talc and a calcium carbonate, having been formed with the coloring high crystal polypropylene with which said design section contain a weatherproof component, and be form by the olefin system elastomer said whose lip section be the JIS-A degree of hardness of 60-80 degrees.

[Claim 3] The core material made from the hard polypropylene with which the stop section in which extrusion molding of the cross section is carried out to the shape of an abbreviation C typeface, and it is stopped by the point of the both-sides leg at a body side was formed, The design section made from coloring high crystal polypropylene which extruded on the outside surface of the surface section which connects the both-sides leg of this core material, and was really fabricated, The gradually-changing area of the olefin system elastomer which extends toward a body side in the part which it extrudes on the point of the leg, and is really fabricated, and while there is a part estranged said body side this estranges, or the product made from polypropylene, The mall for automobiles characterized by having the lip section made from an olefin system elastomer really [extrusion] fabricated, respectively on the lateral surface of the leg of another side, and the lateral surface of said gradually-changing area.

[Claim 4] In the mall for automobiles according to claim 3, it is formed with the hard polypropylene with which said core material carries out 10-50 percentage-by-weight content of the mixture of talc, a calcium carbonate, or a talc and a calcium carbonate. It is formed with the coloring high crystal polypropylene with which said design section contains a weatherproof component. The mall for automobiles characterized by having formed said gradually-changing area with the SHORE-D degree of hardness of 40-60 degrees, the olefin system elastomer of bending elastic-modulus 650-850MPa, or polypropylene, and being formed by the olefin system elastomer said whose lip section is the JIS-A degree of hardness of 60-80 degrees.

[Claim 5] The mall for automobiles characterized by injection molding the terminal piece section of an olefin system elastomer with a JIS-A degree of hardness of 90-100 degrees or the product made from polypropylene to the both ends of said mall in the mall for automobiles according to claim 1 to 4.

[Claim 6] The core material made from hard polypropylene which has the surface section and the leg in which the stop section stopped at a body side was formed, The design section made from coloring high crystal polypropylene fabricated on the outside surface of said surface section, Carry out extrusion molding of the lip section made from an olefin system elastomer fabricated on the side face of the leg to one with one extrusion-molding line, and a cylindrical shaping member is formed. Bending is carried out to the crookedness Plastic solid of a configuration which judged this cylindrical shaping member to predetermined die length, and met the body configuration by the vendor after heating. The manufacture approach of the mall for automobiles characterized by annealing this crookedness Plastic solid and controlling the degree of crystallinity of the hard polypropylene of said core to 40 - 55%.

[Claim 7] The core material made from the hard polypropylene with which the stop section in which a cross section is stopped by the point of the nothing both-sides leg in the shape of an abbreviation C typeface at a body side was formed, The design section made from coloring high crystal polypropylene fabricated on the outside surface of the surface section which connects the both-sides leg of this core material, The gradually-changing area of the olefin system elastomer which the part estranged said body side has while, and extends toward a body side in the part fabricated and

this estranged on the point of the leg, or the product made from polypropylene, On the lateral surface of the leg of another side, and the lateral surface of said gradually-changing area, carry out extrusion molding of the lip section made from an olefin system elastomer fabricated, respectively to one with one extrusion-molding line, and a cylindrical shaping member is formed. Bending is carried out to the crookedness Plastic solid of a configuration which judged this cylindrical shaping member to predetermined die length, and met the body configuration by the vendor after heating. The manufacture approach of the mall for automobiles characterized by annealing this crookedness Plastic solid and controlling the degree of crystallinity of the hard polypropylene of said core to 40 - 55%.

[Claim 8] The manufacture approach of the mall for automobiles characterized by injection molding the terminal piece section of an olefin system elastomer or polypropylene to the both ends of said crookedness Plastic solid in the manufacture approach of the mall for automobiles according to claim 6 or 7.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the mall for automobiles, and its manufacture approach.

[0002]

[Description of the Prior Art] Extrusion molding of the color resin of a denaturation olefin system or a denaturation styrene system is carried out so that the metal core material which had the stop section formed in the both-sides leg by the shape of a cross-section abbreviation KO typeface may be covered, and the color mall for automobiles which prepared the lip made of elasticity synthetic resin in this color resin is indicated by JP,2000-313049,A.

[0003] At moreover, the rear face of the mall surface section which consists of acrylonitrile acrylic rubber styrene resin, acrylonitrile, EPDM and styrene resin, or acrylonitrile styrene swine JIEN resin The mall subject who consists of the acrylonitrile acrylic rubber styrene resin, or the acrylonitrile, EPDM and styrene resin with which the stop section was formed in the cross-section abbreviation configuration for L characters is really fabricated. The roof mall for automobiles which protruded on the mall subject is indicated by JP,9-2170,A in the lip which consists of flexible resin, such as Elasticity PVC and styrene ethylene butylene styrene resin.

[0004]

[Problem(s) to be Solved by the Invention] If it was in the mall for automobiles which covered and formed thermoplastics on the metal core material, in order to consider as the configuration where there is a problem in respect of lightweight-izing and recycle nature and cost, and the body configuration was met, roll forming or press forming had to be performed, and the manufacturing cost was also high.

[0005] Moreover, in the mall which fabricated in the mall surface section and the mall subject section with acrylonitrile acrylic rubber styrene resin, and acrylonitrile, EPDM and styrene resin, and fabricated the lip with plasticized-polyvinyl-chloride resin, styrene ethylene butylene styrene resin, etc., the problem was in environment nature and recycle nature.

[0006] Furthermore, the conventional mall which formed the mall outside surface with the non-crystalline polymer deteriorated with the adhering gasoline and acid or alkaline car wash liquid, and had the nonconformity which becomes easy to damage.

[0007] Made in order that this invention might cancel the starting conventional nonconformity, the object is having really carried out extrusion molding of all a core material, the design sections, the gradually-changing areas, and lip sections by olefin system resin.

[0008]

[Means for Solving the Problem] In order to solve the above-mentioned technical problem, the description on the configuration of invention according to claim 1 The core material made from hard polypropylene to which extrusion molding of the surface section and the leg in which the stop section stopped at a body side was formed was carried out, It is having had the design section made from coloring high crystal polypropylene which extruded on the outside surface of said surface section, and was really fabricated, and the lip section made from an olefin system elastomer which extruded on the side face of said leg and was really fabricated.

[0009] the description on the configuration of invention concerning claim 2 be having been formed with the hard polypropylene with which said core material carry out 10 - 50 percentage by weight content of the mixture of talc, a calcium carbonate, or a talc and a calcium carbonate, having been formed with the coloring high crystal polypropylene with which said design section contain a weatherproof component, and formed by the olefin system elastomer said lip section of whose be the JIS - A degree of hardness of 60 - 80 degrees in the mall according to claim 1 for automobiles.

[0010] The core material made from the hard polypropylene with which the stop section in which extrusion molding of

the cross section is carried out to the shape of an abbreviation C typeface, and the description on the configuration of invention concerning claim 3 is stopped by the point of the both-sides leg at a body side was formed, The design section made from coloring high crystal polypropylene which extruded on the outside surface of the surface section which connects the both-sides leg of this core material, and was really fabricated, The gradually-changing area of the olefin system elastomer which extends toward a body side in the part which it extrudes on the point of the leg, and is really fabricated, and while there is a part estranged said body side this estranges, or the product made from polypropylene, It is having had the lip section made from an olefin system elastomer really [extrusion] fabricated, respectively on the lateral surface of the leg of another side, and the lateral surface of said gradually-changing area.

[0011] The description on the configuration of invention concerning claim 4 is set to the mall for automobiles according to claim 3. It is formed with the hard polypropylene with which said core material carries out 10-50 percentage-by-weight content of the mixture of talc, a calcium carbonate, or a talc and a calcium carbonate. It is formed with the coloring high crystal polypropylene with which said design section contains a weatherproof component. It is said gradually-changing area's having been formed with the SHORE-D degree of hardness of 40-60 degrees, the olefin system elastomer of bending elastic-modulus 650-850MPa, or polypropylene, and formed by the olefin system elastomer said whose lip section's is the JIS-A degree of hardness of 60-80 degrees.

[0012] The description on the configuration of invention concerning claim 5 is having injection molded the terminal piece section of an olefin system elastomer with a JIS-A degree of hardness of 90-100 degrees or the product made from polypropylene to the both ends of said mall in the mall for automobiles according to claim 1 to 4.

[0013] The core material made from the hard polypropylene with which the description on the configuration of invention concerning claim 6 has the surface section and the leg in which the stop section by which it is stopped at a body side was formed, The design section made from coloring high crystal polypropylene fabricated on the outside surface of said surface section, Carry out extrusion molding of the lip section made from an olefin system elastomer fabricated on the side face of the leg to one with one extrusion-molding line, and a cylindrical shaping member is formed. It is carrying out bending to the crookedness Plastic solid of a configuration which judged this cylindrical shaping member to predetermined die length, and met the body configuration by the vendor after heating, annealing this crookedness Plastic solid, and controlling the degree of crystallinity of the hard polypropylene of said core to 40 - 55%.

[0014] The core material made from the hard polypropylene with which the stop section in which, as for the description on the configuration of invention concerning claim 7, a cross section is stopped by the point of the nothing both-sides leg in the shape of an abbreviation C typeface at a body side was formed, The design section made from coloring high crystal polypropylene fabricated on the outside surface of the surface section which connects the both-sides leg of this core material, The gradually-changing area of the olefin system elastomer which the part estranged said body side has while, and extends toward a body side in the part fabricated and this estranged on the point of the leg, or the product made from polypropylene, On the lateral surface of the leg of another side, and the lateral surface of said gradually-changing area, carry out extrusion molding of the lip section made from an olefin system elastomer fabricated, respectively to one with one extrusion-molding line, and a cylindrical shaping member is formed. It is carrying out bending to the crookedness Plastic solid of a configuration which judged this cylindrical shaping member to predetermined die length, and met the body configuration by the vendor after heating, annealing this crookedness Plastic solid, and controlling the degree of crystallinity of the hard polypropylene of said core to 40 - 55%.

[0015] The description on the configuration of invention concerning claim 8 is injection molding the terminal piece section of an olefin system elastomer or polypropylene to the both ends of said crookedness Plastic solid in the manufacture approach of the mall for automobiles according to claim 6 or 7.

[0016]

[Function and Effect of the Invention] In invention concerning claim 1 constituted as mentioned above Extrusion molding of the core material which has the surface section and the leg in which the stop section stopped at a body side was formed is carried out with hard polypropylene. Since extruded the design section made from coloring high crystal polypropylene, really fabricated, the lip section made from an olefin system elastomer was extruded on the side face of the leg, it really fabricated and the whole mall was used as the one Plastic solid of olefin system resin on the surface section of a core material It excels in recycle nature and environment nature, becomes a light weight and low cost as compared with the mall using a metal core material, and does not deteriorate with car wash liquid etc. by having fabricated the outside design section with coloring high crystal polypropylene that a blemish cannot be attached easily.

[0017] In invention concerning claim 2 constituted as mentioned above A core material is formed with the hard polypropylene which carries out 10-50 percentage-by-weight content of the mixture of talc, a calcium carbonate, or a talc and a calcium carbonate. Since said design section was formed with the coloring high crystal polypropylene containing a weatherproof component and said lip section was formed by the olefin system elastomer with a JIS-A

degree of hardness of 60-80 degrees In addition to an effect of the invention according to claim 1, it can consider as the core material equipped with sufficient rigidity, the design section which has weatherability, and the lip section equipped with required flexibility.

[0018] In invention concerning claim 3 constituted as mentioned above Extrusion molding of the core material made from the hard polypropylene with which the stop section in which a cross section is stopped by the point of the nothing both-sides leg in the shape of an abbreviation C typeface at a body side was formed is carried out. On the surface section of a core material, extrude the design section made from coloring high crystal polypropylene, and it really fabricates. There is a part estranged a body side, extrude the gradually-changing area of the olefin system elastomer which extends toward a body side on the point of the leg, or the product made from polypropylene, and it really fabricates. Since the lip section made from an olefin system elastomer was really [extrusion] fabricated, respectively and the whole mall was used as the one Plastic solid of olefin system resin on the lateral surface of the another side leg, and the lateral surface of a gradually-changing area It excels in recycle nature and environment nature, and compares with the mall using a metal core material. A light weight, It does not deteriorate with car wash liquid etc. that a blemish cannot be easily attached by having become low cost and having fabricated the outside design section with coloring high crystal polypropylene. And the part to which the body configuration of mall both sides changes with gradually-changing areas formed with an olefin system elastomer or polypropylene can also be fitted smoothly.

[0019] In invention concerning claim 4 constituted as mentioned above A core material is formed with the hard polypropylene which carries out 10-50 percentage-by-weight content of the mixture of talc, a calcium carbonate, or a talc and a calcium carbonate. Said design section is formed with the coloring high crystal polypropylene containing a weatherproof component. Since said gradually-changing area was formed with the SHORE-D degree of hardness of 40-60 degrees, the olefin system elastomer of bending elastic-modulus 650-850MPa, or polypropylene and said lip section was formed by the olefin system elastomer with an A degree of hardness of 60-80 degrees In addition to an effect of the invention according to claim 3, it can consider as the core material equipped with sufficient rigidity, the design section which has weatherability, the gradually-changing area equipped with required flexibility, and the lip section.

[0020] In invention concerning claim 5 constituted as mentioned above In the mall for automobiles according to claim 1 to 4, since it was made to injection mold the terminal piece section of an olefin system elastomer with a JIS-A degree of hardness of 90-100 degrees or the product made from polypropylene to the both ends of a mall In addition to an effect of the invention according to claim 1 to 4, it excels in the recycle nature and environment nature which formed all also including the terminal piece section by olefin system resin, and a light weight and the low cost mall for automobiles can be obtained.

[0021] In invention concerning claim 6 constituted as mentioned above The core material made from hard polypropylene which has the surface section and the leg in which the stop section stopped at a body side was formed, The design section made from coloring high crystal polypropylene fabricated on the outside surface of the surface section of this core material, Carry out extrusion molding of the lip section made from an olefin system elastomer fabricated on the side face of the leg to one with one extrusion-molding line, and a cylindrical shaping member is formed. Bending is carried out to the crookedness Plastic solid of a configuration which met the body configuration by the vendor after judging and heating this cylindrical shaping member to predetermined die length. Since this crookedness Plastic solid is annealed and the degree of crystallinity of the hard polypropylene of a core material was controlled to 40 - 55% The mall for automobiles which could maintain the smooth configuration where a core material did not deform into the bottom of the operating environment high temperature of an automobile, and the body configuration of an automobile was met, and was altogether fabricated with olefine resin can be manufactured to low cost by good work environment.

[0022] In invention concerning claim 7 constituted as mentioned above The core material made from the hard polypropylene with which the stop section in which a cross section is stopped by the point of the nothing both-sides leg in the shape of an abbreviation C typeface at a body side was formed, The design section made from coloring high crystal polypropylene fabricated on the outside surface of the surface section of this core material, The gradually-changing area made from an olefin system elastomer or polypropylene which the part estranged a body side has while and is fabricated on the point of the leg, Extrude to one the lip section made from an olefin system elastomer fabricated, respectively on the lateral surface of the leg of another side, and the lateral surface of a gradually-changing area with one extrusion-molding line, and a cylindrical shaping member is fabricated. Bending is carried out to the crookedness Plastic solid of a configuration which met the body configuration by the vendor after judging and heating this cylindrical shaping member to predetermined die length. Since this crookedness Plastic solid is annealed and the degree of crystallinity of the hard polypropylene of a core material was controlled to 40 - 55% The gradually-changing area which can fit smoothly the part to which the body configurations of mall both sides differ can be efficiently extruded to

a core material, and can really be fabricated to it. The mall for automobiles which a core material deforming into the bottom of the operating environment high temperature of an automobile, and deserting a body appearance was lost, and was altogether fabricated with olefine resin can be manufactured to low cost by good work environment.

[0023] In invention concerning claim 8 constituted as mentioned above, in the manufacture approach of the mall for automobiles according to claim 6 or 7, since it was made to injection mold the terminal piece section of an olefin system elastomer or polypropylene to the both ends of a crookedness Plastic solid, in addition to an effect of the invention according to claim 6 or 7, the mall for automobiles which formed all also including the terminal piece section by olefin system resin can be manufactured by low cost.

[0024]

[Embodiment of the Invention] The operation gestalt of this invention is explained based on a drawing. As shown in drawing 1, the joint 14 of the roof panel 12 and a side panel 13 of the body 11 of an automobile is equipped with the mall 10 for automobiles concerning this invention, and it consists of the roof section 15, the front window section 16, and the rear window section 17.

[0025] The mall 10 for automobiles is formed based on the core material 20 made from hard polypropylene by which extrusion molding was carried out to the shape of a cross-section abbreviation C typeface, as shown in drawing 2 thru/or drawing 7. As hard polypropylene which forms a core material 20, what carried out abbreviation 40 percentage-by-weight addition of the talc is used for what [what carried out 10-50 percentage-by-weight content of the mixture of talc, a calcium carbonate, or a talc and a calcium carbonate etc.], for example, polypropylene. The stop section 24 stopped by the fasteners 23 and 31 made from polypropylene fixed to the point of the leg 22 which protruded from the both sides of the surface section 21 of a core material 20 by keeping spacing in a body 11 side suitably is formed inside, respectively. As the fastener 23 which fixes the roof section 15 of a mall 10 to the roof part of the body 11 is shown in drawing 3, the lobe 27 of the couple in which the hook 26 which protrudes on the upper part from the base 25 fixed to the joint 14 of the roof panel 12 and a side panel 13 and a base 25, and engages with each stop section 24 at a head was formed, respectively is formed. As the fastener 31 which fixes the front window section 16 and the rear window section 17 of a mall 10 to the window side part of the body 11 is shown in drawing 7, the lobe 30 in which the hook 29 which protrudes on the upper part from the base 28 fixed to the side panel 13 and a base 28, and engages with the stop section 24 by the side of a windowpane at a head was formed is formed. 32 is a wire for preventing that a mall 10 contracts with heat etc., and in case it carries out extrusion molding of the core material 20, it is embedded by the longitudinal direction in one at a part for the center section of each leg 22.

[0026] 35 is the design section made from coloring high crystal polypropylene, is extruded on the outside surface of the surface section 21 which connects the both-sides leg 22 of a core material 20, and is really fabricated. Since high crystal polypropylene is hard, its sex with a blemish-proof improves. It is good for high crystal polypropylene to add weatherproof components (UVA, HALS, etc.), such as not only coloring agents, such as a pigment and aluminum foil, but a heat-resistant stabilizer, an ultraviolet ray absorbent, light stabilizer, etc.

[0027] In the front window section 16 and the rear window section 17, as shown in drawing 2 and drawing 7, a windowpane 36, and the leg 22 by the side of 37 and the windowpanes 36 and 37 which are body sides have estranged in the both-sides leg 22 of a core material 20. 38 is the gradually-changing area made from an olefin system elastomer or polypropylene which extruded on the point of the leg 22 by the side of the body, and was really fabricated, and the extension sections 39 and 40 have extended toward the body side in the part which one leg 22 estranges with windowpanes 36 and 37. A gradually-changing area 38 is good to form with the SHORE-D degree of hardness of 40-60 degrees, the olefin system elastomer of bending elastic-modulus 650-850MPa, or polypropylene.

[0028] On the lateral surface of the another side leg 22 by the side of the side panel 13 of a core material 20, the lip section 41 made from an olefin system elastomer was really [two article extrusion] fabricated, and is in contact with the side panel 13. Also on the lateral surface of a gradually-changing area 38, the lip section 42 made from an olefin system elastomer extrudes, and it is really fabricated. In the front window section 16 and the rear window section 17, the lip section 42 was fabricated on the extension section 39 of a gradually-changing area 38, and 40, and approaches and is in contact with windowpanes 36 and 37. The lip sections 41 and 42 are good to form by the olefin system elastomer with an excellent in a core material 20 and welding nature with a gradually-changing area 38 JIS-A degree of hardness of 60-80 degrees.

[0029] In drawing 1, 43 is the terminal piece which the both ends of a mall 20 injection molded, and is formed with an olefin system elastomer with a JIS-A degree of hardness of 90-100 degrees or polypropylene.

[0030] Next, the manufacture approach of the mall 10 for automobiles is explained. In drawing 8, 50 is one extrusion-molding line and has the extruder 54 of the extruder 53 of the extruder 51 of the hard polypropylene for core material 20, the extruder 52 of the coloring high crystal polypropylene for design section 35, the olefin system elastomer for

gradually-changing area 38, or polypropylene, the lip section 41, and the olefin system elastomer for 42. The resin extruded from extruders 51-54 is supplied to each extrusion metal mold which has the cross-section configuration of the core material 20 of extrusion metal mold equipment 55, the design section 35, a gradually-changing area 38, and the lip sections 41 and 42. Extrusion molding of the core material 20 of the product [cross section] made from hard abbreviation C typeface-like polypropylene is carried out. On the outside surface of the surface section 21 of a core material 20, the design section 35 made from coloring high crystal polypropylene extrudes, and it is really fabricated. On the point of one leg 22, the gradually-changing area 38 made from an olefin system elastomer or polypropylene extrudes, and it is really fabricated. On the lateral surface of the leg 22 of another side, and the lateral surface of a gradually-changing area 38, the lip sections 41 and 42 made from an olefin system elastomer are really [extrusion] fabricated, respectively, and the cylindrical shaping member 57 is formed.

[0031] In this case, as shown in drawing 7 , a nozzle orifice configuration is changed so that, as for a core material 20, the leg 22 by the side of a side panel may become [in / in relation to the amount of extrusion of the cylindrical shaping member 57 / in the extrusion metal mold for core material 20 / the rear window section 17] short, since the leg 22 by the side of a side panel is short in the rear window section 17. Moreover, the nozzle orifice configuration is an adjustable type, one leg 22 also extends the extrusion metal mold for gradually-changing area 38 in relation to the amount of extrusion of the cylindrical shaping member 57 in the front window section 16 and the rear window section 17 which are estranged a body side, and the extension sections 39 and 40 which extend according to this clearance toward a body side are fabricated to a gradually-changing area 38. In order to extrude the lip section 42 to the point lateral surface of a gradually-changing area 38 and to really fabricate it, the extrusion metal mold for lip section 42 is moved so that the point of the extension sections 39 and 40 may be counteracted in the front window section 16 and the rear window section 17 in relation to the amount of extrusion of the cylindrical shaping member 57. 56 is a wire feeder, and where a wire 32 is embedded at a part for each center section of the both-sides leg 22 at a longitudinal direction, in order to carry out extrusion molding of the core material 20, it supplies a wire 32 to the extrusion metal mold for core material 20.

[0032] The film 61 of the letter of continuation wound around the reel 60 is formed above the extrusion metal mold for design section 35. A film 61 consists of a heat-resistant polyethylene terephthalate film by which melting is not carried out with the melting temperature of the above-mentioned olefin system resin. The slit which carries out opening is formed in a nozzle top face from the upper part at the extrusion metal mold for design section 35, and the film 61 drawn from the reel 60 by the nozzle through the slit is stuck to the top face of the design section 35 by which extrusion molding was carried out by pressure.

[0033] After the cylindrical shaping member 57 of the mall 10 where extrusion molding was carried out by the extrusion-molding line 50, and the film 61 was stuck by pressure is stabilized by the predetermined configuration with sizing equipment 58, it passes the cooling water tank 59 which held cooling water, and cooling solidification is carried out at a predetermined configuration. After the cylindrical shaping member 57 passes a cooling water tank 59, a film 61 is rolled round by the reel 62 and exfoliates from the design section 35. From the design section 35, the masking tape 64 wound around the reel 63 pushes against the design section 35 with a roller 65, and is stuck on the cylindrical shaping member 57 by which the film 61 exfoliated. 65 is a drawing machine and draws out the cylindrical shaping member 57 by which extrusion molding was carried out in the extrusion-molding line 50. After the cylindrical shaping member 57 on which masking tape 64 was stuck is drawn out by the drawing machine 65, it is judged by predetermined die length with a cutter 66 in a predetermined part, and the shaping raw material 67 of mall 10 piece is formed.

[0034] Next, the shaping raw material 67 is heated to the temperature softened in extent whose bending by the vendor becomes possible (stroke 70), and as a three-dimension vendor shows to drawing 2 thru/or drawing 7 according to a body configuration, bending is carried out to a three dimension (stroke 71). In order to carry out configuration maintenance under the operating environment high temperature of an automobile, annealing of crookedness Plastic solid 68 by which bending was carried out to the three dimension is carried out (process 72). Annealing heats the shaping raw material 67 by which bending was carried out to the three dimension for 0.2 to 1 hour at the crystallization temperature of 130-155 degrees C lower than softening temperature, and controls the degree of crystallinity of polypropylene PUREN containing the talc of a core material 20 etc. to 40 - 55%. It is lost that a core material deforms by this and a mall 10 deserts a body appearance. The both ends of crookedness Plastic solid 68 by which annealing was carried out injection mold the terminal piece section 69 of an olefin system elastomer or polypropylene (process 73), and the mall 10 for automobiles is completed.

[0035] In the above-mentioned operation gestalt, although the front window section 16 and the rear window section 17 are formed in the both sides of the roof section 15, the front window section 16 and the rear window section 17 may be removed, and the mall for automobiles may be formed only in the roof section without a gradually-changing area.

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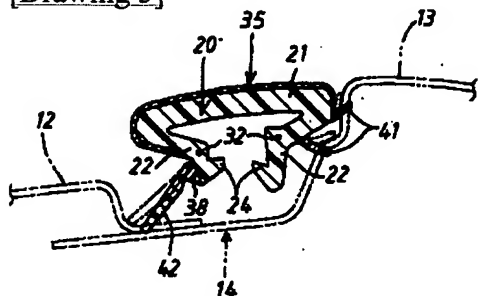
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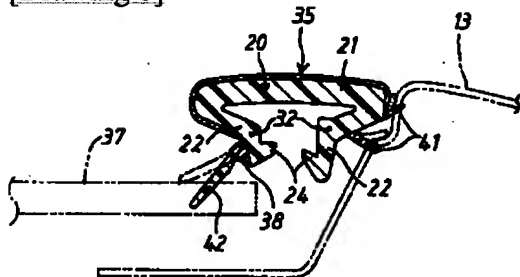
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DRAWINGS

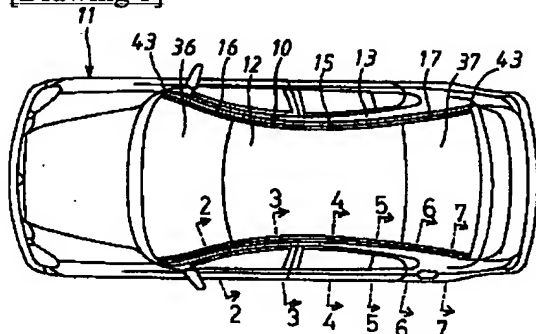
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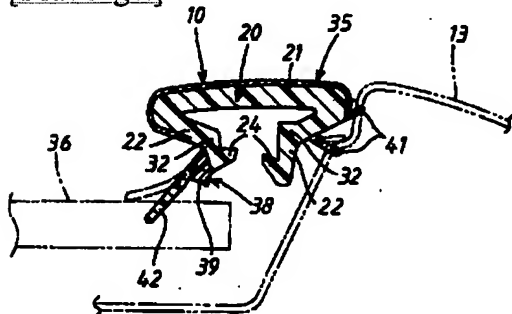
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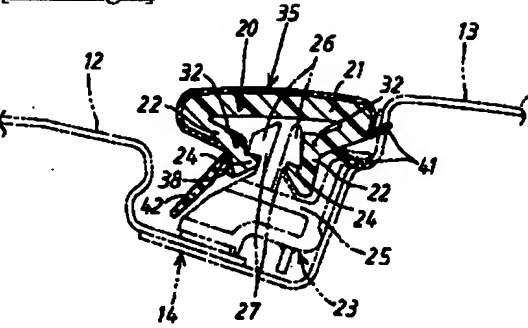
[Drawing 1]



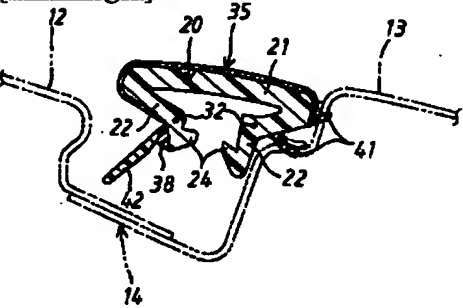
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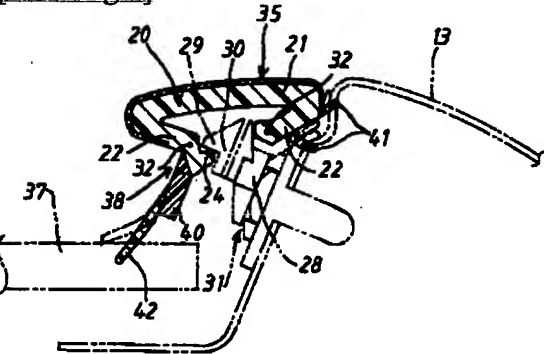
[Drawing 3]



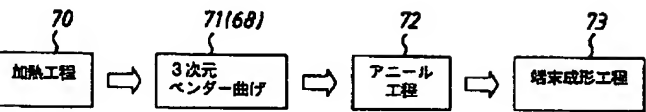
[Drawing 4]



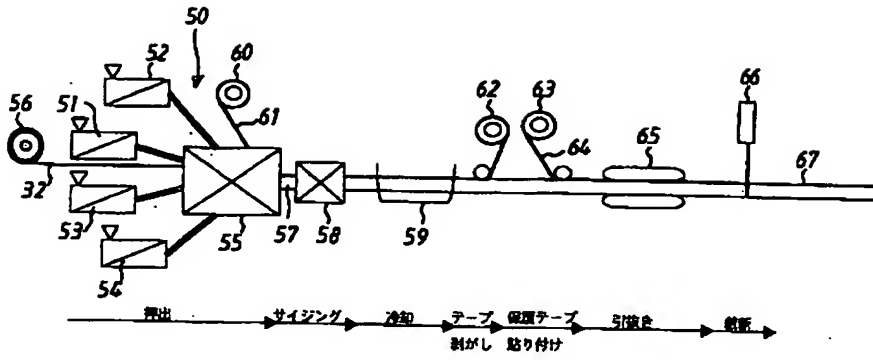
[Drawing 7]



[Drawing 9]



[Drawing 8]



[Translation done.]